Appendix E

RWSP Biosolids Policies

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A. Explanatory material. The biosolids policies are intended to guide the county to continue to produce and market class B biosolids. The county will also continue to evaluate alternative technologies so as to produce the highest quality marketable biosolids. This would include technologies that produce class A biosolids.

Biosolids Policies	How Implemented in 2004–2006
BP-1: King County shall strive to achieve beneficial use of wastewater solids. A beneficial use can be any use that proves to be environmentally safe, economically sound and utilizes the advantageous qualities of the material.	One hundred percent of King County's biosolids were used beneficially in agriculture and forestry or as an ingredient in compost. At the West Point and South treatment plants, digester gas was used for energy generation, and at South plant, some of the gas was sold.
BP-2: Biosolids-derived products should be used as a soil amendment in landscaping projects funded by King County.	Specifications for the biosolids compost, GroCo have been added to King County's standard procurement documents for use in bids and contracts. GroCo is also used in the King County Parks greenhouse/nursery program.
BP-3: King County shall consider new and innovative technologies for wastewater solids processing, energy recovery, and beneficial uses brought forward by public or private interests. King County shall seek to advance the beneficial use of wastewater solids, effluent, and methane gas through research and demonstration projects.	WTD continues to evaluate and test new technologies with the capability to advance the beneficial use of biosolids, reclaimed water, and energy resources. Digester gas (methane) is used for energy generation at the plants or is scrubbed and sold. A two-year fuel cell demonstration project at South Plant using digester gas began in February 2004; demonstration testing was completed in 2006. A feasibility study, which has been funded by a state grant, will be prepared in 2007 to identify potential technologies for utilizing the digester gas to generate alternative forms of energy at Brightwater. Resulting from research (2004 to 2006) initiated by University of Washington, the county's biosolids are being used by canola farmers in eastern Washington. In 2006, WTD worked with the University of Washington to estimate carbon sequestration for each biosolids end use: composting, agriculture, and forestry. The university also evaluated the potential for biosolids applications to qualify for carbon credits that could be traded on the Chicago Climate Exchange.
BP-4: King County shall seek to maximize program reliability and minimize risk by one or more of the following: 1. maintaining reserve capacity to manage approximately one hundred fifty percent of projected volume of biosolids; 2. considering diverse technologies, end products, and beneficial uses; or 3. pursuing contractual protections including interlocal agreements, where	WTD recycles 100 percent of its biosolids for use in forestry, on irrigated and dryland crops, and to make compost. The biosolids program has permitted land, primarily in Douglas County to maintain site capacity for 150 percent of annual production. This additional capacity has allowed King County to recycle 100 percent of its biosolids even when one or more of its projects has temporarily reduced capacity. The county continues to evaluate markets that would provide additional site capacity as well as provide environmental benefits and continues to investigate

Biosolids Policies	How Implemented in 2004–2006
appropriate.	technologies that have the potential to cost-effectively produce Class A biosolids.
BP-5: King County shall produce and use biosolids in accordance with federal, state and local regulations.	All regulatory requirements for production and beneficial use of biosolids are being met. In 2004, the county's biosolids program passed an independent audit and was certified into a national program of Environmental Management Systems (EMS). King County was the third wastewater agency in the nation to earn this prestigious certification. The EMS is a program developed by the National Biosolids Partnership to document, monitor and optimize the management of wastewater solids and improve biosolids management programs nationwide.
BP-6: King County shall strive to produce the highest quality biosolids economically and practically achievable and shall continue efforts to reduce trace metals in biosolids consistent with 40 C.F.R. Part 503 pollutant concentration levels (exceptional quality) for individual metals. The county shall continue to provide class B biosolids and also to explore technologies that may enable the county to generate class A biosolids cost-effectively or because they have better marketability. Future decisions about technology, transportation and distribution shall be based on marketability of biosolids products.	WTD's biosolids are routinely monitored for metals, conventional constituents (phosphorous, potassium, and pH), microbes, and organic compounds. WTD's biosolids consistently meet or exceed all federal and state criteria. The county's biosolids metal concentrations are well below the most restrictive federal and state standards. Industrial source control and pretreatment have reduced the amount of metals in biosolids by 70–90 percent since the 1980s. WTD's Industrial Waste Program is evaluating potential sources that contribute Mo (molybdenum) to the wastewater system, such as air conditioning cooling towers. EPA is expected to limit Mo in biosolids for land application in upcoming revisions to federal biosolids rules (40 CFR 503). WTD is participating in a two-year study on the fate and degradation of nonylphenol from land applied biosolids. Nonylphenol is a surfactant found in many household cleaning products and therefore is commonly found in wastewater and biosolids. In 2004–2006, the county conducted investigations into the most appropriate technologies and resultant costs of producing Class A biosolids. The investigation concluded that, at this time, Temperature-Phased Anaerobic Digestion would be the most viable alternative for converting each plant to Class A Biosolids production. Further assessment of costs and benefits will continue in 2007.
BP-7: When biosolids derived products are distributed outside the wastewater service area, the county shall require that local sponsors using the products secure any permits required by the local government body.	The local sponsors outside of the county's wastewater service area who use biosolids are responsible for securing local support and any applicable permits relating to the use of biosolids.
BP-8: King County shall work cooperatively with statewide organizations on biosolids issues.	King County participates in local organizations and is a founding member of the Northwest Biosolids Management Association (NBMA), whose purpose is to share technical knowledge about biosolids

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	management between members, provide opportunities to work with university scientists; local, state, and federal regulators; and the general public. Through the NBMA, WTD works cooperatively with regulatory officials, scientists, and other biosolids managers on regulatory issues, education and training, public information, and research and demonstration. WTD is participating in the Washington State Department of Ecology's biosolids rule revision advisory group and in the NBMA's regulations committee review and comment process. In addition, the county and the University of Washington are evaluating the amount of carbon storage created by each of WTD's current biosolids end uses.
BP-9: King County shall seek to minimize the noise and odor impact associated with processing, transporting and applying of biosolids, consistent with constraints of economic and environmental considerations and giving due regard to neighboring communities.	In 2004–2006, biosolids truck trips at West Point have averaged about four trips per day. At South plant, the trips went from an average of 6.6 trips per day in 2003 to fewer than five trips per day in 2006. The reduction in truck trips at both plants is attributed to the installation of high solids centrifuges. However, odors at application sites have increased due to the use of the centrifuges. WTD is evaluating the options available to reduce these odors. National studies are also under way as other treatment plants are facing similar results from the use of high-solids centrifuges. The West Point Digestion System Improvements project is being planned to increase the stability of the digestion system and decrease the potential for digester upsets. In addition to affecting the quality of the biosolids, these upsets increase odor at the plant. The project will also include modifications to the blending storage tank (Digester 6) to enable its use as an emergency active digester if needed. Predesign will be completed in 2007; final design is expected be complete in 2008.
BP-10: Where cost-effective, King County shall beneficially use methane produced at the treatment plants for energy and other purposes.	King County is beneficially using digester gas, which consists mostly of energy-rich methane gas, at both treatment plants. Both the West Point and South plants recover this gas to generate electricity and heat for treatment plant processes; it is used to power engines, boilers, turbines, and a fuel cell to produce heat and power. Some of the gas produced at South plant is sold to Puget Sound Energy for distribution in its natural gas system.